

09/926820
531 Rec'd PC... 26 DEC 2001

- 1 -

<211> 1064
 <212> PRT
 <213> Mamalia

<400> 1

Met	Lys	Ile	Ala	Thr	Val	Ser	Val	Leu	Leu	Pro	Leu	Ala	Leu	Cys	Leu	1	5	10	15
Ile	Gln	Asp	Ala	Ala	Ser	Lys	Asn	Glu	Asp	Gln	Glu	Met	Cys	His	Glu	20	25	30	
Phe	Gln	Ala	Phe	Met	Lys	Asn	Gly	Lys	Leu	Phe	Cys	Pro	Gln	Asp	Lys	35	40	45	
Lys	Phe	Phe	Gln	Ser	Leu	Asp	Gly	Ile	Met	Phe	Ile	Asn	Lys	Cys	Ala	50	55	60	
Thr	Cys	Lys	Met	Ile	Leu	Glu	Lys	Glu	Ala	Lys	Ser	Gln	Lys	Arg	Ala	65	70	75	80
Arg	His	Leu	Ala	Arg	Ala	Pro	Lys	Ala	Thr	Ala	Pro	Thr	Glu	Leu	Asn	85	90	95	
Cys	Asp	Asp	Phe	Lys	Lys	Gly	Glu	Arg	Asp	Gly	Asp	Phe	Ile	Cys	Pro	100	105	110	
Asp	Tyr	Tyr	Glu	Ala	Val	Cys	Gly	Thr	Asp	Gly	Lys	Thr	Tyr	Asp	Asn	115	120	125	
Arg	Cys	Ala	Leu	Cys	Ala	Glu	Asn	Ala	Lys	Thr	Gly	Ser	Gln	Ile	Gly	130	135	140	
Val	Lys	Ser	Glu	Gly	Glu	Cys	Lys	Ser	Ser	Asn	Pro	Glu	Gln	Asp	Val	145	150	155	160
Cys	Ser	Ala	Phe	Arg	Pro	Phe	Val	Arg	Asp	Gly	Arg	Leu	Gly	Cys	Thr	165	170	175	
Arg	Glu	Asn	Asp	Pro	Val	Leu	Gly	Pro	Asp	Gly	Lys	Thr	His	Gly	Asn	180	185	190	
Lys	Cys	Ala	Met	Cys	Ala	Glu	Leu	Phe	Leu	Lys	Glu	Ala	Glu	Asn	Ala	195	200	205	
Lys	Arg	Glu	Gly	Glu	Thr	Arg	Ile	Arg	Arg	Asn	Ala	Glu	Lys	Asp	Phe	210	215	220	
Cys	Lys	Glu	Tyr	Glu	Lys	Gln	Val	Arg	Asn	Gly	Arg	Leu	Phe	Cys	Thr	225	230	235	240
Arg	Glu	Ser	Asp	Pro	Val	Arg	Gly	Pro	Asp	Gly	Arg	Met	His	Gly	Asn	245	250	255	
Lys	Cys	Ala	Leu	Cys	Ala	Glu	Ile	Phe	Lys	Arg	Arg	Phe	Ser	Glu	Glu	260	265	270	
Asn	Ser	Lys	Thr	Asp	Gln	Asn	Leu	Gly	Lys	Ala	Glu	Glu	Lys	Thr	Lys	275	280	285	
Val	Lys	Arg	Glu	Ile	Val	Lys	Leu	Cys	Ser	Gln	Tyr	Gln	Asn	Gln	Ala	290	295	300	
Lys	Asn	Gly	Ile	Leu	Phe	Cys	Thr	Arg	Glu	Asn	Asp	Pro	Ile	Arg	Gly	305	310	315	320

1 1 1 1

Pro	Asp	Gly	Lys	Met 325	His	Gly	Asn	Leu	Cys 330	Ser	Met	Cys	Gln	Val 335	Tyr
Phe	Gln	Ala	Glu 340	Asn	Glu	Glu	Lys	Lys 345	Lys	Ala	Glu	Ala	Arg 350	Ala	Arg
Asn	Lys	Arg 355	Glu	Ser	Gly	Lys	Ala 360	Thr	Ser	Tyr	Ala	Glu 365	Leu	Cys	Asn
Glu	Tyr 370	Arg	Lys	Leu	Val	Arg 375	Asn	Gly	Lys	Leu	Ala 380	Cys	Thr	Arg	Glu
Asn 385	Asp	Pro	Ile	Gln	Gly 390	Pro	Asp	Gly	Lys	Val 395	His	Gly	Asn	Thr	Cys 400
Ser	Met	Cys	Glu	Val 405	Phe	Phe	Gln	Ala	Glu 410	Glu	Glu	Glu	Lys	Lys 415	Lys
Lys	Glu	Gly	Glu 420	Ser	Arg	Asn	Lys	Arg 425	Gln	Ser	Lys	Ser	Thr 430	Ala	Ser
Phe	Glu	Glu 435	Leu	Cys	Ser	Glu	Tyr 440	Arg	Lys	Ser	Arg	Lys 445	Asn	Gly	Arg
Leu	Phe 450	Cys	Thr	Arg	Glu	Asn 455	Asp	Pro	Ile	Gln	Gly 460	Pro	Asp	Gly	Lys
Met 465	His	Gly	Asn	Thr	Cys 470	Ser	Met	Cys	Glu	Ala 475	Phe	Phe	Gln	Gln	Glu 480
Glu	Arg	Ala	Arg	Ala 485	Lys	Ala	Lys	Arg	Glu 490	Ala	Ala	Lys	Glu	Ile 495	Cys
Ser	Glu	Phe	Arg 500	Asp	Gln	Val	Arg	Asn 505	Gly	Thr	Leu	Ile	Cys 510	Thr	Arg
Glu	His	Asn 515	Pro	Val	Arg	Gly	Pro 520	Asp	Gly	Lys	Met	His 525	Gly	Asn	Lys
Cys	Ala 530	Met	Cys	Ala	Ser	Val 535	Phe	Lys	Leu	Glu	Glu 540	Glu	Glu	Lys	Lys
Asn 545	Asp	Lys	Glu	Glu	Lys 550	Gly	Lys	Val	Glu	Ala 555	Glu	Lys	Val	Lys	Arg 560
Glu	Ala	Val	Gln	Glu 565	Leu	Cys	Ser	Glu	Tyr 570	Arg	His	Tyr	Val	Arg 575	Asn
Gly	Arg	Leu	Pro 580	Cys	Thr	Arg	Glu	Asn 585	Asp	Pro	Ile	Glu	Gly 590	Leu	Asp
Gly	Lys	Ile 595	His	Gly	Asn	Thr	Cys 600	Ser	Met	Cys	Glu	Ala 605	Phe	Phe	Gln
Gln	Glu 610	Ala	Lys	Glu	Lys	Glu 615	Arg	Ala	Glu	Pro	Arg 620	Ala	Lys	Val	Lys
Arg 625	Glu	Ala	Glu	Lys	Glu 630	Thr	Cys	Asp	Glu	Phe 635	Arg	Arg	Leu	Leu	Gln 640
Asn	Gly	Lys	Leu	Phe 645	Cys	Thr	Arg	Glu	Asn 650	Asp	Pro	Val	Arg	Gly 655	Pro

- 3 -

Asp Gly Lys Thr His Gly Asn Lys Cys Ala Met Cys Lys Ala Val Phe
 660 665 670
 Gln Lys Glu Asn Glu Glu Arg Lys Arg Lys Glu Glu Glu Asp Gln Arg
 675 680 685
 Asn Ala Ala Gly His Gly Ser Ser Gly Gly Gly Gly Gly Asn Thr Gln
 690 695 700
 Asp Glu Cys Ala Glu Tyr Gln Glu Gln Met Lys Asn Gly Arg Leu Ser
 705 710 715 720
 Cys Thr Arg Glu Ser Asp Pro Val Arg Asp Ala Asp Gly Lys Ser Tyr
 725 730 735
 Asn Asn Gln Cys Thr Met Cys Lys Ala Lys Leu Glu Arg Glu Ala Glu
 740 745 750
 Arg Lys Asn Glu Tyr Ser Arg Ser Arg Ser Asn Gly Thr Gly Ser Glu
 755 760 765
 Ser Gly Lys Asp Thr Cys Asp Glu Phe Arg Ser Gln Met Lys Asn Gly
 770 775 780
 Lys Leu Ile Cys Thr Arg Glu Ser Asp Pro Val Arg Gly Pro Asp Gly
 785 790 795 800
 Lys Thr His Gly Asn Lys Cys Thr Met Cys Lys Glu Lys Leu Glu Arg
 805 810 815
 Glu Ala Ala Glu Lys Lys Lys Lys Glu Asp Glu Asp Arg Ser Asn Thr
 820 825 830
 Gly Glu Arg Ser Asn Thr Gly Glu Arg Ser Asn Asp Lys Glu Asp Leu
 835 840 845
 Cys Arg Glu Phe Arg Ser Met Gln Arg Asn Gly Lys Leu Ile Cys Thr
 850 855 860
 Arg Glu Asn Asn Pro Val Arg Gly Pro Tyr Gly Lys Met His Ile Asn
 865 870 875 880
 Lys Cys Ala Met Cys Gln Ser Ile Phe Asp Arg Glu Ala Asn Glu Arg
 885 890 895
 Lys Lys Lys Asp Glu Glu Lys Ser Ser Ser Lys Pro Ser Asn Asn Ala
 900 905 910
 Lys Asp Glu Cys Ser Glu Phe Arg Asn Tyr Ile Arg Asn Asn Glu Leu
 915 920 925
 Ile Cys Pro Arg Glu Asn Asp Pro Val His Gly Ala Asp Gly Lys Phe
 930 935 940
 Tyr Thr Asn Lys Cys Tyr Met Cys Arg Ala Val Phe Leu Thr Glu Ala
 945 950 955 960
 Leu Glu Arg Ala Lys Leu Gln Glu Lys Pro Ser His Val Arg Ala Ser
 965 970 975
 Gln Glu Glu Asp Ser Pro Asp Ser Phe Ser Ser Leu Asp Ser Glu Met
 980 985 990
 Cys Lys Asp Tyr Arg Val Leu Pro Arg Ile Gly Tyr Leu Cys Pro Lys
 995 1000 1005

- 4 -

Asp Leu Lys Pro Val Cys Gly Asp Asp Gly Gln Thr Tyr Asn Asn Pro
 1010 1015 1020

Cys Met Leu Cys His Glu Asn Leu Ile Arg Gln Thr Asn Thr His Ile
 1025 1030 1035 1040

Arg Ser Thr Gly Lys Cys Glu Glu Ser Ser Thr Pro Gly Thr Thr Ala
 1045 1050 1055

Ala Ser Met Pro Pro Ser Asp Glu
 1060

<210> 2
 <211> 35
 <212> PRT
 <213> Mamalia

<400> 2
 Ser Ala Phe Arg Pro Phe Val Arg Asp Gly Arg Leu Gly Cys Thr Arg
 1 5 10 15

Glu Asn Asp Pro Val Leu Gly Pro Asp Gly Lys Thr His Gly Asn Lys
 20 25 30

Cys Ala Met
 35

<210> 3
 <211> 35
 <212> PRT
 <213> Mamalia

<400> 3
 Asn Glu Tyr Arg Lys Leu Val Arg Asn Gly Lys Leu Ala Cys Thr Arg
 1 5 10 15

Glu Asn Asp Pro Ile Gln Gly Pro Asp Gly Lys Val His Gly Asn Thr
 20 25 30

Cys Ser Met
 35

<210> 4
 <211> 35
 <212> PRT
 <213> Mamalia

<400> 4
 Arg Glu Phe Arg Ser Met Gln Arg Asn Gly Lys Leu Ile Cys Thr Arg
 1 5 10 15

Glu Asn Asn Pro Val Arg Gly Pro Tyr Gly Lys Met His Ile Asn Lys
 20 25 30

Cys Ala Met

- 5 -

35

<210> 5
 <211> 35
 <212> PRT
 <213> Mamalia

<400> 5
 Ser Glu Phe Arg Asn Tyr Ile Arg Asn Asn Glu Leu Ile Cys Pro Arg
 1 5 10 15
 Glu Asn Asp Pro Val His Gly Ala Asp Gly Lys Phe Tyr Thr Asn Lys
 20 25 30
 Cys Tyr Met
 35

<210> 6
 <211> 52
 <212> PRT
 <213> Mamalia

<400> 6
 Lys Asp Tyr Arg Val Leu Pro Arg Ile Gly Tyr Leu Cys Pro Lys Asp
 1 5 10 15
 Leu Lys Pro Val Cys Gly Asp Asp Gly Gln Thr Tyr Asn Asn Pro Cys
 20 25 30
 Met Leu Cys His Glu Asn Leu Ile Arg Gln Thr Asn Thr His Ile Arg
 35 40 45
 Ser Thr Gly Lys
 50

<210> 7
 <211> 3528
 <212> DNA
 <213> Mamalia

<400> 7
 tatgcatgga gtggacctgt aggcgacttg catcgtcttc aacatgaaga tagccacagt 60
 gtcagtgttt ctgcccttgg ctctttgcct catacaagat gctgccagta agaatagaaga 120
 tcaggaaatg tgccatgaat ttcaggcatt tatgaaaaat ggaaaactgt tctgtcccca 180
 ggataagaaa ttttttcaaa gtcttgatgg aataatgttc atcaataaat gtgccacgtg 240
 caaaatgata ctggaaaaag aagcaaaatc acagaagagg gccaggcatt tagcaagagc 300
 tcccaaggct actgccccaa cagagctgaa ttgtgatgat tttaaaaaag gagaaagaga 360
 tggggatttt atctgtcctg attattatga agctgtttgt ggcacagatg ggaaaacata 420
 tgacaacaga tgtgcaactgt gtgctgagaa tgcgaaaacc ggggtcccaa ttggtgtaaa 480
 aagtgaaggg gaatgtaaga gcagtaatcc agagcaggat gtatgcagtg cttttcggcc 540
 ctttggttaga gatggaagac ttggatgcac aagggaataat gatcctgttc ttggtcctga 600
 tgggaagacg catggcaata agtgtgcaat gtgtgctgag ctgttttttaa aagaagctga 660
 aaatgccaaag cgagagggtg aaactagaat tcgacgaaat gctgaaaagg atttttgcaa 720
 ggaatatgaa aaacaagtga gaaatggaag gcttttttgt acacgggaga gtgatccagt 780
 ccgtggccct gacggcagga tgcattggcaa caaatgtgcc ctgtgtgctg aaattttcaa 840
 gcggcggttt tcagaggaaa acagtaaaac agatcaaaat ttgggaaaag ctgaagaaaa 900

- 6 -

```

aactaaagtt aaaagagaaa ttgtgaaact ctgcagtcaa tatcaaaatc aggcaaagaa 960
tggaataactt ttctgtacca gagaaaaatga ccctattcgt ggtccagatg ggaaaatgca 1020
tggcaacttg tggtccatgt gtcaagtcta cttccaagca gaaaatgaag aaaagaaaaa 1080
ggctgaagca cgagctagaa acaaaaagaga atctggaaaa gcaacctcat atgcagagct 1140
ttgcaatgaa tatcgaaaagc ttgtgaggaa cggaaaaactt gcttgaccca gagagaacga 1200
tcctatccag ggcccagatg ggaaagtgcg cggcaacacc tgctccatgt gtgaggtctt 1260
cttccaagca gaagaagaag aaaagaaaaa gaaggaaggc gaatcaagaa acaaaagaca 1320
atctaagagt acagcttcct ttgaggagtt gtgtagttaa taccgcaaat ccaggaaaaa 1380
cggacggctt ttttgaccca gagagaatga ccccatccag ggcccagatg ggaaaatgca 1440
tggcaacacc tgctccatgt gtgaggcctt ctttcaacaa gaagaaagag caagagcaaa 1500
ggctaaaaga gaagctgcaa aggaaatctg cagtgaattt cgggaccaag tgaggaatgg 1560
aacacttata tgcaccaggg agcataatcc tgtccgtgga ccagatggca aaatgcatgg 1620
aaacaagtgt gccatgtgtg ccagtgtgtt caaacttgaa gaagaagaga agaaaaatga 1680
taaagaagaa aaaggggaaa ttgaggctga aaaagttaa agagaagcag ttcaggagct 1740
gtgcagtga tatcgtcatt atgtgaggaa tggacgactc ccctgtacca gagagaatga 1800
tcctattgag ggtctagatg ggaaaaatcca cggcaacacc tgctccatgt gtgaagcctt 1860
cttccagcaa gaagcaaaaag aaaaagaaa agctgaacct agagcaaaaag tcaaaagaga 1920
agctgaaaag gagacatgcg atgaatttcg gagacttttg caaaatggaa aacttttctg 1980
cacaagagaa aatgatcctg tgcgtggccc agatggcaag acccatggca acaagtgtgc 2040
catgtgtaag gcagtcttcc agaaagaaaa tgaggaaaag aagaggaaaag aagaggaaag 2100
tcagagaaat gctgcaggac atggttccag tgggtgggtgga ggaggaaaca ctcaggacga 2160
atgtgctgag tatcaggaac aaatgaaaaa ttggaagactc agctgtactc gggagagtga 2220
tcctgtacgt gatgctgatg gcaaatcgta caacaatcag tgtaccatgt gttaaagcaa 2280
attggaaaaga gaagcagaga gaaaaaatga gtattctcgc tccagatcaa atgggactgg 2340
atcagaatca gggaaggata catgtgatga gtttagaagc caaatgaaaa atggaaaact 2400
tatctgcact cgagaaaagt accctgtccg gggccagat ggcaagacac atggtataaa 2460
gtgtactatg tgtaaggaaa aactggaaaag ggaagcagct gaaaaaaaaa agaaagagga 2520
tgaagacagg agcaatacag gagaaaaggag caatacagga gaaaggagca atgacaaaag 2580
ggatctgtgt cgtgaatttc gaagcatgca gagaaatgga aagcttatct gcaccagaga 2640
aaataaccct gttcgaggcc catatggcaa gatgcacatc aataaatgtg ctatgtgtca 2700
gagcatcttt gatcgagaag ctaatgaaag aaaaaagaaa gatgaagaga aatcaagtag 2760
caagccctca aataatgcaa aggatgagtg cagtgaattt cgaaactata taaggaaaca 2820
tgaactcatc tgccctagag agaatgacct agtgcacggt gctgatggaa agttctatac 2880
aaacaagtgc tacatgtgca gagctgtctt tctaacagaa gctttggaaa gggcaaaagct 2940
tcaagaaaag ccatcccatg ttagagcttc tcaagaggaa gacagcccag actctttcag 3000
ttctctggat tctgagatgt gcaaagacta ccgagtattg cccaggatag gctatctttg 3060
tccaaaggat ttaaagcctg tctgtggtga cgatggccaa acctacaaca atccttgcac 3120
gctctgtcat gaaaacctga tacgccaaac aaatacacac atccgcagta cagggaagtg 3180
tgaggagagc agcaccaccg gaaccaccgc agccagcatg ccccgctctg acgaatgaca 3240
ggagatttgt tgaaagccat gagggaaaaa ataaaccca gttctgaatc acctaccttc 3300
accatctgta tatacaaaga attcttcgga gcttgcttta tttgctatag aaaacaatac 3360
agagcttttg ggaatggaat cactgatttt cagtcttttc catttctttc ctctagaaat 3420
ctgtgatctg aggggtataaa gacatttcca ccaagtttga gccctcaaaa tgtcctgatt 3480
acaatgctgt ctgtccaact gcctgttcaa taaaagtaaa ctccagcag 3528

```

<210> 8
<211> 105
<212> DNA
<213> Mamalia

```

<400> 8
agtgccttttc ggccctttgt tagagatgga agacttggat gcacaagggg aaatgatcct 60
gttcttgggtc ctgatgggaa gacgcatggc aataagtgtg caatg 105

```

<210> 9
<211> 105
<212> DNA
<213> Mamalia

<400> 9

- 7 -

aatgaatattc gaaagcttgt gaggaacgga aaacttgctt gcaccagaga gaacgatcct 60
atccagggcc cagatgggaa agtgcacggc aacacctgct ccatg 105

<210> 10
<211> 99
<212> DNA
<213> Mamalia

<400> 10
cgtgaatttc gaagcatgca gagaaatgga aagcttatct gcaccagaga aaataaccct 60
gttcgaggcc catatggcaa gatgcacatc aataaatgt 99

<210> 11
<211> 105
<212> DNA
<213> Mamalia

<400> 11
agtgaatttc gaaactatat aaggaacaat gaactcatct gccctagaga gaatgaccca 60
gtgcacgggtg ctgatggaaa gttctataca aacaagtgtg acatg 105

<210> 12
<211> 156
<212> DNA
<213> Mamalia

<400> 12
aaagactacc gagtattgcc caggataggc tatctttgtc caaaggattt aaagcctgtc 60
tgtggtgacg atggccaaac ctacaacaat ctttgcattg tctgtcatga aaacctgata 120
cgccaaacaa atacacacat ccgcagtaca gggaag 156